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     (FILE 'HOME' ENTERED AT 15:20:01 ON 03 JUL 2000)

     FILE 'TULSA' ENTERED AT 15:20:08 ON 03 JUL 2000
L1            18 S 152MM OR 152.4MM OR 152.4()MM OR 152()MM
L2            13 S L1 AND (DRILLPIPE? OR PIPE? OR PIPING)
L3            15 S 177.8MM OR 177.8(2A)MM OR 177(2A)MM OR 177MM
L4             0 S L2 AND L3
L5             8 S (DRILLPIPE? OR PIPE? OR PIPING) AND L3

=> d ibib abs 15 1-8
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L5   ANSWER 1 OF 8  TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER:   98:18931  TULSA
DOCUMENT NUMBER:    683202
TITLE:              COMPLETION METHOD AND CEMENTING TECHNICAL MEASURES OF SEA
                    COAST AREA MULTI-TARGETS EXTENSION WELLS WITH GREAT
                    DISPLACEMENT
AUTHOR:             CAI, C; LU, W; SUN, R; HOU, A
SOURCE:             OIL DRILLING PROD TECHNOL V 19, NO 6, PP 42-46,106,
                    12/20/97 (ISSN 10007393; 2 REFS; IN CHINESE). ; Journal
LANGUAGE:           Chinese
AB    The cementing quality of Bohai Gulf multi-target extension wells with
      great displacement was assured through application of a series of
      technological measures such as rational location of casing centralizers,
      optimized selection of cement and cement additives, prolonged thickening
      effect of cement slurry, and adjusted injection and return velocity of
      cement slurry. The technological process of cementing the (phi) 339.7-mm
      surface casing, (phi) 273-mm and (phi) 177.8
      -mm production casing, and (phi) 127-mm liner is analyzed. The
      design of the casing string and casing centralizers, and compatibility
      tests of G 601 filtration control agent, G 602 crosslinking agent and H
88
      retarder are also studied. The experiences of cementing the casing and
      liner in the deep well with multi-targets are summarized.
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L5   ANSWER 2 OF 8  TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER:   1998:14032  TULSA
DOCUMENT NUMBER:    678303
TITLE:              DRILLING AND COMPLETION TECHNOLOGY OF THE PAIRED PARALLEL
                    HORIZONTAL WELLS
AUTHOR:             LIU, X; FAN, X; QIAO, Z; HU, S
SOURCE:             OIL DRILLING PROD TECHNOL V 19, NO 5, PP 6-12,111,
10/20/97
                    (ISSN 10007393; 2 REFS; IN CHINESE). ; Journal
LANGUAGE:           Chinese
AB    A pair of parallel horizontal wells were drilled for the steam-assisted
      gravity drainage exploitation of the Du 84 extra-viscous crude oil block
      in Liaohe oil field. Well Du 84 horizontal 1-1 is a production well
      (lower); Well Du 84 horizontal 1-2 is a steam injection well (upper). The
      production well was drilled first, then the injection well. The final
true
      depth, the vertical depth of the target point, and the length of
      horizontal segments were 1,214.00 m, 796.81 m, 325.53 m for the first
well
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and 1,189.00 m, 760.51 m, 307.71 m for the second well. The maximum and the minimum vertical intervals between the horizontal section of the 2 wells were 11.98 m and 10.43 m. The intermediate casing was run into 10 to 15 m of the reservoir, and (phi)168-mm TBS screen **pipe** and (phi) **177.8-mm** dead **pipe** were used for completion and were hung at a depth of 30 m below the intermediate casing shoe with a hook-wall packer. The geological conditions, the design principles of the casing program, the design requirements for well profile and the control technique of the hole trajectory in the inclined section and horizontal sections are described.

L5 ANSWER 3 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 1998:14031 TULSA
DOCUMENT NUMBER: 678302
TITLE: DRILLING TECHNOLOGY OF SHW-01 DEEP HORIZONTAL WELL
AUTHOR: LI, G; ZHAO, Z; LU, X
SOURCE: OIL DRILLING PROD TECHNOL V 19, NO 5, PP 13-15,21,111-112, 10/20/97 (ISSN 10007393; IN CHINESE). ; Journal
LANGUAGE: Chinese
AB The first deep horizontal well SHW-01 was drilled in Shixi reservoir, Xinjiang oil field, with a final true depth of 4,800.10 m; the vertical depth was 4,385.20 m, deviation 90.3(deg), closed azimuth 7.06(deg) and displacement 550.33 m. The 339.7-mm surface casing was set at 500 m; (phi)244.5-mm intermediate casing string was set at 4,013.37 m. The **pipe** stuck at 4,390.18 m (deviation angle: 69(deg)), and the well had to be cemented after ineffective treatments. Sidetracking at 4,066.21 m employed Dyna-drill with double or single bent sub to increase the hole angle, and entered the horizontal section at a depth of 4,472.05 m (deviation angle: 88(deg)). Because of the winter drilling and complexity of the down hole, the well was completed ahead of time for assurance of safety. A combination of (phi) **177.8 mm** x 4,288.43 m and (phi)139.7 mm x 503.67 m production casing was used. The hydrocarbon reservoir was completed with slotted casing alternated with conventional casing.

L5 ANSWER 4 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 1998:7272 TULSA
DOCUMENT NUMBER: 671543
TITLE: A DISCUSSION ON DIRECT SLOT SIDETRACKING TECHNIQUE IN **177.8MM** DIAMETER CASING
AUTHOR: XIE, Y
CORPORATE SOURCE: SICHUAN PETROLEUM ADMIN
SOURCE: NATUR GAS IND V 17, NO 3, PP 6A,54-56, 5/25/97 (ISSN 10000976; IN CHINESE). ; Journal
LANGUAGE: Chinese
AB Based on field experiences of slot sidetracking with **177.8-mm** diameter casing deflecting unit in 6 wells, a new technique of direct slot sidetracking, which only changes the mill cone geometric size without using a deflecting unit, is studied. The slot sidetracking in **177.8-mm** casing can be done using the force produced by the specific geometric size of the mill cone at down-hole conditions. The first operation in **177.8-mm** diameter casing in well Zhong 4 had a success ratio of 100%. Results provide a new program for well workovers in Moxi gas field in wells damaged by H2S corrosion.

L5 ANSWER 5 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 97:23062 TULSA
DOCUMENT NUMBER: 662896
TITLE: ADVANCED SLIMHOLE TECHNOLOGY USED TO DRILL 800-M HORIZONTAL RE-ENTRY WELLS - RAINBOW LAKE FIELD

AUTHOR: HOLLIES, D; SZUTIAK, G
CORPORATE SOURCE: HUSKY OIL OPERATIONS LTD; BAKER HUGHES INTEQ
SOURCE: 7TH BIEN CADE/CAODC SPRING DRILLING CONF (CALGARY, CAN, 4/8-10/97) PROC PAP NO 97-106, 1997 (17 PP; 2 REFS). ; Conference; Conference Article
LANGUAGE: English
AB The prolific Keg River pinnacle reef structures in Husky's Rainbow Lake field have provided an excellent testing ground for developing horizontal reentry technology. The use of 98-mm or slimhole re-entries has revived a number of rapidly declining pools in the field. The Keg River A and Keg River E pools were plagued by gas and water coning problems, due to the tremendously well-developed porosity (>= 20%) and high permeabilities (up to one darcy). Typical horizontal drilling and completion problems include an overlying gas cap, productive and sour uphole zones in the build section, as well as heavy lost circulation and differential sticking in the horizontal Keg River oil leg below. To minimize the cost and hazardous surface effects of these problems, a 114.3-mm intermediate liner is now being run from the **177.8-mm** intermediate casing in the host well. The key technological advancement was the development of a reliable 98-mm directional drilling system, which can drill the lateral and perform to the standards of elevation control and steerability that the larger hole sizes have provided in the past.

L5 ANSWER 6 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 97:1702 TULSA
DOCUMENT NUMBER: 641536
TITLE: DEEP WELL SIDETRACKED TECHNOLOGY OF YAKEN-3 WELL
AUTHOR: YANG, J; DENG, X; PAN, W; GENG, B
SOURCE: OIL DRILLING PROD TECHNOL V 18, NO 3, PP 27-31,107, 4/20/96 (ISSN 10007393; IN CHINESE). ; Journal
LANGUAGE: Chinese
AB The design depth for the Yaken-3 well in North Talimu was 6,200 m, but while drilling at 5,546.33 m, the **pipe** stuck in salt. The drill collar broke during treatment and sidetracking was started. The first sidetrack failed because of the downhole motor. The second kickoff point was selected at 5,100 m. Under deep well conditions of high temperature (112(deg)C), high pressure (drilling fluid density 1.74 g/cu cm), and poor rock drillability, the sidetrack was successful using a down-hole motor and SST tool. The well was successfully completed with a **177.8-mm** liner at 5,658.73 m.

L5 ANSWER 7 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 96:9339 TULSA
DOCUMENT NUMBER: 622664
TITLE: THE OPTIMIZATION OF GAS WELL CASING PROGRAM IN CENTRAL AREAS OF SHANGANNING BASIN
AUTHOR: SHI, X
SOURCE: OIL DRILLING PROD TECHNOL V 17, NO 4, PP 15-24,62,105, 8/20/95 (ISSN 10007393; 1 REF; IN CHINESE). ; Journal
LANGUAGE: Chinese
AB During the exploration of the Shanganning Basin, the casing program was gradually optimized. At present, 273-mm diameter surface casing is run to 500 m, shutting off the overlying water zone, inclined zone and leakage zone, and **177.8-mm** diameter production casing is run for the final completion. The importance and feasibility of selecting the casing program are demonstrated. The well drilling and completion technologies developed for Changqing oil field made it possible to drill safely and rapidly in the long open sections located in multilayered and multipressured formations, while these technologies

prevented formation damage. It is believed that the optimized casing program is not only the best way to develop the gas field in the central Shanganning Basin economically and efficiently, but also made it possible to repair corroded casings.

L5 ANSWER 8 OF 8 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 95:18355 TULSA
DOCUMENT NUMBER: 606263
TITLE: IMPERIAL OIL RESOURCES LIMITED COILED TUBING DRILLING EXPERIENCE
AUTHOR: RICE, B
SOURCE: CADE/CAODC SPRING DRILLING CONF (CALGARY, CAN, 4/19-21/95) PROC PAP NO 95-903, 1995 (11 PP). ; Conference; Conference Article; General Review; Review
LANGUAGE: English

AB Recently, coiled tubing has found increasing utilization as a drilling tool. This paper reviews the experience obtained in the execution of 2 coiled tubing drilling projects. The first well at Wilson Creek was drilled vertically and overbalanced to a depth of 1,450 m with 60.3-mm coiled tubing. The well was drilled through 177.8-mm surface casing which had been preset to a depth of 145 m. The second application was an underbalanced well deepening at Sinclair in the Canadian Deep Basin. A prospective low- pressure gas reservoir at a depth of 1,765 m was accessed by vertically drilling underbalanced through existing 139.7- mm production casing. This paper provides a review of the coiled tubing drilling systems performance. Lease layout, operating limitations and drilling costs are discussed. Recommendations are provided for future coiled tubing drilling applications.

Karen Lehman EIC 3600

a **152-mm** (6- in.) by 55-km **pipeline**. This
paper describes the background to the technology, the facilities used, and
the results obtained during development of this transportation method.

L2 ANSWER 3 OF 13 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 94:16373 TULSA
DOCUMENT NUMBER: 580251
TITLE: STUDY ON APPLICATION OF ECCENTRIC BDC BIT
AUTHOR: WANG, Q; ZHANG, Y
SOURCE: OIL DRILLING PROD TECHNOL V 15, NO 6, PP 35-41,99-100, 12/20/93 (ISSN 10007393; 3 REFS; IN CHINESE). ; Journal
LANGUAGE: Chinese
AB The cost-effective improvement of slim-hole drilling speed in penetrating the thick interval from the middle Sha-3 through Sha-4 formation, the prevention of **pipe** sticking caused by the creeping shrinkage of hole diameter and other down-hole difficulties, and the improvement of cementing quality in the small clearance well are the important issues of deep well drilling technology. The issues have been solved by the application of the eccentric Ballaset bit jointly developed by the No. 2 Drilling Co. in Zhongyuan oil field and Chuan-Shi Christensen Diamond Bit Ltd. Co. The results of field tests in 4 different types of wells using the type S28-248 eccentric bit of 149.2-mm OD indicate that the bit performance is significantly higher than the rock bit of **152. 4-mm** OD, conventional PDC (polycrystalline diamond compact) bit, and TSP (thermally stable polycrystalline) bit previously run in Zhongyuan oil field.

L2 ANSWER 4 OF 13 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 93:14682 TULSA
DOCUMENT NUMBER: 555095
TITLE: SMALL-DIAMETER MFL (MAGNETIC FLUX LEAKAGE) DETECTOR OVERCOMING TECHNICAL HURDLES
AUTHOR: ATHERTON, D L; LAURSEN, P; SIEBERT, M A
CORPORATE SOURCE: QUEEN'S UNIV, KINGSTON
SOURCE: PIPE LINE IND V 76, NO 3, PP 69-73, MARCH 1993 (ISSN 00320145; 5 REFS). ; Journal
LANGUAGE: English
AB Small-diameter, smart inspection pigs are in demand. Smart inspection pigs using MFL detection techniques are propsed as the most cost effective approach to in-service **pipeline** corrosion monitoring. New generation MFL-detector tools can provide detailed line condition descriptions. The challenge of developing small diameter pigs of this type is discussed. Design and testing of such a prototype for in- line inspection of **152-mm** (6-in.) lines are described.

L2 ANSWER 5 OF 13 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 93:784 TULSA
DOCUMENT NUMBER: 541197
TITLE: CORE ANNULAR FLOW : PRELIMINARY OPERATIONAL EXPERIENCE AND MEASUREMENTS IN A **152 MM** X 55 KM **PIPELINE**
AUTHOR: GUEVARA, E; ZUBILLAGA, V; ZAGUSTIN, K; ZAMORA, G; DUIJVESTIJN, A
CORPORATE SOURCE: PETROLEOS VENEZUELA SA; SHELL RESEARCH BV
SOURCE: 5TH UNITAR ET AL HEAVY CRUDE & TAR SANDS INT CONF (CARACAS, VENEZUELA, 8/4-9/91) PROC V 4, PP 237-243, 1991 (ISBN 0-7732-0635-3; 7 REFS). ; Conference; Conference Article
LANGUAGE: English
AB The experimental program in the 1,000-m long and 203-mm diameter pilot test loop in San Tome proved that core annular flow is a stable flow

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     (FILE 'HOME' ENTERED AT 15:20:01 ON 03 JUL 2000)

     FILE 'TULSA' ENTERED AT 15:20:08 ON 03 JUL 2000
L1             18 S 152MM OR 152.4MM OR 152.4()MM OR 152()MM
L2             13 S L1 AND (DRILLPIPE? OR PIPE? OR PIPING)
L3             15 S 177.8MM OR 177.8(2A)MM OR 177(2A)MM OR 177MM
L4              0 S L2 AND L3
L5              8 S (DRILLPIPE? OR PIPE? OR PIPING) AND L3

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ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:y

COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                      74.30      74.45

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Karen Lehman EIC 3600

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L2 ANSWER 1 OF 13 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 2000:13990 TULSA
DOCUMENT NUMBER: 730594
TITLE: DRA (DRAG REDUCING AGENT) FOR GAS **PIPELINING** SUCCESSFUL IN GULF OF MEXICO TRIAL
AUTHOR: CHEN, H J; KOUBA, G E; FOUCHI, M S; FU, B; REY, D G
CORPORATE SOURCE: CHEVRON PETROL TECHNOL CO; CHEVRON OVERSEAS PETR INC; NALCO
EXXON ENERGY CHEM LP
SOURCE: OIL GAS J V 98, NO 23, PP 54-58, 6/5/2000 (ISSN 00301388; COLOR; 5 REFS). ; Journal
LANGUAGE: English

AB A field trial conducted on a gas **pipeline** in the Gulf of Mexico on the use of a corrosion inhibitor as natural gas DRA has resulted in peak gas-production rate increases by 10 to 15% and peak pressure drop decreases of up to 20%. The **pipeline** used for this field trial was a 6-in. (**152.4-mm**) subsea flowline with a total length of approx. 5 miles (8.05 km). The types of corrosion inhibitors used in this application are fatty acids, oxyalkylated fatty acid amines, and/or amide with carbon numbers between 18 to 54. These compounds are effective gas drag reducers because they all have amine functional groups providing strong binding to the metal surface; the long-chain hydrocarbon part serves as a lubricating surface to mitigate turbulence at the gas-solid interface. The chemistry of the main component is based on polyamido-amines. A well-formed film behaves as a coating on the surface to offer a smoother surface. Consequently, the friction loss can be significantly reduced. The corrosion inhibitor used in this application does not change the fluid property to achieve the drag reducing effect. Instead, it works by directly reducing the surface roughness, and consequently the pressure drop across the **pipeline**.

L2 ANSWER 2 OF 13 TULSA COPYRIGHT 2000 UTULSA
ACCESSION NUMBER: 96:13452 TULSA
DOCUMENT NUMBER: 626777
TITLE: TRANSPORTABLE AND STABLE HYDROCARBONS IN BUFFER SOLUTION DISPERSIONS
AUTHOR: PADRON, A; CASTRO, L; ZAMORA, G
CORPORATE SOURCE: MARAVEN SA
SOURCE: 6TH UNITAR ET AL HEAVY CRUDE & TAR SANDS INT CONF (HOUSTON, 2/12-17/95) PROC V 2, PP 587-596, 1995 (CONF-9502114 (DE95000189); 4 REFS). ; Report; Conference; Conference Article
LANGUAGE: English

AB The transportation of the highly viscous crude oil from the Orinoco Belt has been traditionally affected either by heating or diluting. Due to the high costs involved with these processes, considerable effort has been made in the search for nonconventional transportation through **pipelines** for these viscous crudes. One of the alternatives investigated was based on activation of the natural surfactants in the crude oil. Encouraged by the results in the laboratory and in a pilot system, an evaluation in the field was elaborated for commercial trials in

ADDRESS CHANGE - MAINTENANCE FEES
PATENTS - WENDEROTH, LIND & PONACK
February 13, 1998

US Patent Number	Issue Date	Serial Number	Filing Date	Inventor's Last Name
5,000,505	03/19/91	404,967	08/04/89	KAWASHITA
5,000,696	03/19/91	389,899	08/04/89	MATSUOKA
5,000,926	03/19/91	248,903	09/23/88	MURAYAMA
5,000,959	03/19/91	350,029	05/10/89	IGA
5,000,988	03/19/91	143,027	01/12/88	INOUE
5,001,018	03/19/91	414,383	09/10/90	TAKADA
5,001,104	03/19/91	393,761	08/14/89	MORITA
5,001,227	03/19/91	669,942	11/09/84	SCHUTZ
5,001,253	03/19/91	520,843	05/10/90	GUGLIELMETTI
5,001,641	03/19/91	540,869	06/19/90	MAKINO
5,001,931	03/26/91	529,519	05/29/90	NISHIMOTO
5,001,994	03/26/91	086,315	08/17/87	MORIMOTO
5,002,097	03/26/91	512,535	04/18/90	YOKOI
5,002,344	03/26/91	388,837	08/03/89	MATSUMOTO
5,002,400	03/26/91	454,504	12/21/89	STRAND
5,002,403	03/26/91	070,863	07/07/87	HIROSE
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5,002,425	03/26/91	337,882	04/14/89	ORTIZ BORDALL
5,002,427	03/26/91	391,114	08/09/89	KAMBE
5,002,499	03/26/91	429,369	10/31/89	MATSUOKA
5,002,626	03/26/91	343,253	04/26/89	TEZUKA
5,002,707	03/26/91	216,524	07/07/88	OGAWA
5,002,972	03/26/91	476,545	02/07/90	NARISADA
5,002,976	03/26/91	313,876	02/23/89	MCCONNELL
5,002,977	03/26/91	353,335	05/17/89	SEKO
5,003,052	03/26/91	191,846	05/11/88	TZIKAS
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5,003,279	03/26/91	246,827	01/05/88	MORINAGA
5,003,324	03/26/91	391,611	11/17/88	YOSHIIKE
5,003,482	03/26/91	380,547	07/14/89	TERATANI
5,003,692	04/02/91	524,055	05/16/90	IZUMI
5,003,761	04/02/91	379,630	07/13/89	IURA
5,003,786	04/02/91	477,764	02/09/90	FUDONO
5,003,836	04/02/91	376,595	07/07/89	MITSUGU
5,003,891	04/02/91	485,087	02/26/90	KANEKO
5,004,051	04/02/91	406,355	09/12/89	ROSENDAHL
5,004,068	04/02/91	446,766	12/06/89	SASE
5,004,265	04/02/91	409,095	09/19/89	MIZUTANI
5,004,352	04/02/91	356,604	05/23/89	TAMURA
5,004,516	04/02/91	334,547	04/07/89	KOGA
5,004,561	04/02/91	300,210	01/23/89	NOMURA
5,004,611	04/02/91	171,148	03/21/88	LEIGH
5,004,715	04/02/91	483,462	02/22/90	HAKOTANI
5,004,756	04/02/91	390,875	08/08/89	OGAWA
5,004,980	04/02/91	413,387	09/27/89	IDA